Blunt Abdominal Trauma (BAT) Clinical Practice Guideline

Emergency Department Management

Final
7/29/19

Patient presents with mechanism of injury or presenting symptom concerning for blunt abdominal trauma

- Trauma Resuscitation ATLS
- Primary/Secondary Survey, May consider FAST: If abnormal, Consult Surgery [4]
- Trauma Labs [2]: CBC, CMP, Lipase, UA, Serum Pregnancy for menstruating females
- Imaging [3]: CXR, Consider Pelvic X-ray

Hemodynamically Stable?

- No → Consult Surgery → **Free Air or Peritonitis?**
  - No →
    - Continue resuscitation
    - Evaluate for other potential sources of shock
    - Abdominal/Pelvis CT scan if stable
    - Admit to PICU

    (Continue to page 2)
  - Yes →
    - OR for Exploratory Laparotomy
    - ED to notify PICU of pending admission
    - Admit to PICU after OR

    (Continue to page 2)
- Yes → **Normal GCS and Reliable Physical Exam (No distracting injuries)?**
  - No →
    - Consider Surgery consult prior to CT scan
    - Consider Abdominal/ Pelvis CT Scan with IV Contrast

    (Continue to page 2)
  - Yes → Does patient have any of the following?
    - AST > 200
    - Lipase > 400
    - Abdominal wall trauma tenderness/distension
    - Abnormal CXR [3]
    - Complaint of abdominal pain

    (Per Physician discretion)
    - Yes →
      - Consult Surgery [4]
      - Abdominal/Pelvis CT Scan with IV Contrast [3]
      - Negative → Admit/Discharge (below)
      - Positive → Admit to Hospital [5]

        (Continue to page 2)
    - No →
      - Admit - See admission criteria [5]
      - Discharge: If does not meet admission criteria [5]
      - If concern for NAT, follow the *NAT Guideline* (insert link)

      (Continue to page 2)

Exclusion Criteria

- Any penetrating trauma

[2] Trauma Labs

- CBC
- CMP
- Lipase
- Urinalysis
- If hemodynamically unstable, consider Type and Screen or Mass Transfusion Protocol (MTP)

[3] Imaging

Consider Pelvic X-ray if pelvic pain, unstable pelvis or seat belt sign

CXR findings concerning for intra abdominal injury:

- Pneumoperitoneum
- Pneumothorax
- Hemothorax
- Any other finding significant for intra-abdominal injury

Consider Surgery consult prior to CT scan

[4] Consult Surgery

Consult Surgery for the following:

- Seatbelt sign
- + CT scan
- Physical findings or abnormal lab values
- Unreliable physical exam findings
- GCS ≤ 14
- Abnormal FAST (If performed)

[5] Admission Criteria

- Seatbelt sign: High suspicion if not across pelvic bones
- Uncontrolled pain
- Not tolerating PO
- Altered mental status (from baseline)
- Unable to walk

Consider PICU per Physician discretion

Acronyms

BAT: Blunt Abdominal Trauma
ATLS: Advanced Trauma Life Support
FAST: Focused Assessment Sonography for Trauma
GCS: Glasgow Coma Scale
CXR: Chest X-ray
MOI: Mechanism of Injury
MTP: Mass Transfusion Protocol

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Positive CT Scan with IV Contrast?

- No → Admission for observation per physician disrection
- Yes → Free Air → Exploratory Laparotomy
- Yes → Suspected Hollow Visceral Injury → Free Fluid?
  - Yes → Diagnostic Laparoscopy vs Admit for Serial Abdominal Exams *(Per Physician discretion)*
  - No → Admit to Hospital
- Yes → Solid Organ Injury → Admit to Hospital Follow ATOMAC Guideline (See page 3)

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ATOMAC Guideline: Non-operative Management of Liver and Spleen Injury

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Adapted from the ATOMAC Guideline v7.3.4 Aug2012

- Follow ATLS protocol first
- Patients with peritonitis are managed per surgeon discretion and do not follow the algorithm
- Polytrauma patients may follow when not contraindicated
- Continued Bleeding: Defined by the Surgeon (i.e. inadequate Hb increase to transfusion, hemodynamic signs of hypovolemia +/- anemia)
- Stable Hb: a Hb value not dropping more than 0.5mg/dl in 12 hrs. Repeat Hb is optional
- Any lab suspected to be erroneous may be repeated prior to the medical-decision making
- Times refer to time of injury
- Late presentation: Stable patients presenting with 48 hrs post injury are still admitted for 24 hrs of observation but Hb rechecks are optional. Injuries >48 hrs are at Surgeon discretion

Liver or Spleen Injury by CT Scan (or suspected injury)

↓

Ongoing or very recent bleeding? (As determined by Surgeon; may include high HR, low BP, delayed cap refill)

No → **Stable**

- Type and Screen
- Admit to non-ICU
- Vitals q2H x 4, then q4h
- Bedrest overnight
- Hb at 6, 12, and 24 hrs

→ **Hb <7.0 or symptomatic?**

- **No →**
  - Floor status
  - Regular Diet
  - Ambulate if Hb stable for 24 hrs

  Discharge Criteria:
  - Vitals signs stable
  - Tolerating regular diet
  - Minimal abdominal pain
- **Yes →**
  - 10ml/kg PRBC
  - NPO
  - Bedrest additional 24 hrs
  - Hb q6h until stable x2

  Stabilized → Floor status (above)

  Continued Bleeding → Admit to PICU (below)

Yes → **Hypoperfused**

- 20ml/kg LR or NS
- If non-responder or transient response, 10-20 mL/kg PRBC
- Consider other causes (tamponade, spinal shock, etc.)
- Consider the Massive Transfusion Protocol

Non-responder to PRBC; No other cause identified → Surgery

HR/BP/Perfusion stabilize → CT if not already done →

- Admit to PICU
- Vitals per ICU routine
- NPO
- Hb q6h
- Bedrest until Hb stable

→ **Hb <7.0 or symptomatic?**

- **No →**
  - Patient stable
  - No bleeding for 24 hrs
  - Transfer to floor, if not contraindicated by other injuries

  Stabilized → Floor status
- **Yes →**
  - 10-30mL/kg PRBC
  - NPO
  - Bedrest x 24 hr
  - Hb q6h

  →
  - Hb or vital signs still unstable
  - >40mL/kg PRBC's or >4 units PRBC's

  → **Failure of Non-operative Management (NOM)** → Angiography and embolization if available / Surgery / Continued NOM at surgeon discretion

  →
  - Hb ≥ 7.0
  - <4 units PRBC & <40 mL/kg PRBC

  → PICU until Hb stable for 24 hrs

  Rebleed or continued bleeding → Failure of Non-operative Management (NOM)

  Hb Stable → Floor status

Discharge Instructions

- No Ibuprofen or other NSAIDs
- Acetaminophen okay
- May return to school when off narcotic pain meds
- Restricted activity for length of ASPA Guidelines (Grade + 2 = weeks)
- Return to ED for increasing pain, pallor, dizziness, vomiting, worsening shoulder pain, GI bleeding or black tarry stools. Call office for jaundice.
- Grade 1-2: ??
- Grade 3-5: Office visit at 2 weeks.
- No follow-up imaging is required. Imaging is optional
- Must follow-up in clinic to be cleared for sports

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